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Scientist Support for Permanent Protection of the Berryessa Snow Mountain Region
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As members of the scientific community representing many years of research, education, and man-agement that is focused on the environment, conservation, and natural resource management, we support the permanent protection of the Berryessa Snow Mountain Region.

Natural landscapes in the United States face unprecedented pressures that could lead to changes in the landscape, ranging from accelerating climate change to human population growth and related changes in land use. These changes will affect the future well-being of California's natural landscape and the people who occupy it, through altered water supplies, altered fire regime, loss of recreational opportunities, and an erosion of the wonderful natural biological heritage that we share.

The proposed permanent protection of the Berryessa Snow Mountain ("BSM") area as a National Monument is an action that we can take that will address the threatened changes and achieve conservation goals.

- An index of conservation significance is the abundance of sensitive elements. Although sensitive element occurrences in the region are not well catalogued, as of 2008 the region included 550 mapped occurrences of 108 sensitive elements (69 plants, 8 invertebrates, 2 fish, 3 herptiles, 10 birds, 9 mammals, and 7 community types). The region is included in one of three "rarity hot-spots" in California identified by The Nature Conservancy.
- Maintaining the richness of native species is an alternative conservation planning strategy. The California Department of Fish and Wildlife has identified the BSM region as having "high" native species richness. The Department's 2004 Atlas of Biodiversity identified a minimum of 1700 native plant species in the region, in a minimum of 82 plant alliances. The Atlas identified a minimum of 11 native fish species, 42 reptile and amphibian species, 127 bird species, and 55 mammal species as elements of the regional biodiversity.
- This richness arises from such varied sources as ultramafic plant communities isolated from each other and from more widespread plant communities; remnant old-growth conifer forests and alpine vegetation ecologically similar to communities farther north; and a complex mosaic of California vegetation types that include chaparral, oak woodland, and prairies. The complex interplay among these distinctive vegetation elements fosters numerous relict and vicariant populations of plants and both vertebrate and invertebrate animals that collectively result in high biological diversity.
- Native biodiversity is associated with variations in the physical landscape. Lowland areas in public lands near Lake Berryessa occur at 100 feet above sea level. Elevations increase in a south-to-north gradient from Lake Berryessa to Snow Mountain. At 7055 feet, Snow Mountain is the highest landscape element in the region proposed for National Monument inclusion (Snow Mountain is the southernmost high-elevation landscape element in the Klamath-Siskiyou bioregion).

Climate change has been documented as causing changes in species distributions, often toward higher elevations and latitudes. The nature of future changes in climate in Northern California remains un-certain, but likely will include increased temperature, increased fire, and more variable precipitation. Predicted ecological changes include a potential for loss from their current ranges of significant eco-logical dominants (e.g., valley oak), as well as the development of novel ("no-analog") ecological communities and an increased prevalence of exotic plant species.

Possible adaptations to some of the ecological shifts in the BSM region that will accompany climate change are structurally inherent in the proposal, including the increasing elevation of the landscape from south-to-north. More significant is the essential habitat connectivity provided by the existing federal lands, with large blocks of natural landscape elements that are mostly joined by broad habitat linkages, making the BSM region intrinsically well integrated from a climate-adaptation perspective.

The BSM proposal addresses our concerns for managing this varied landscape and its diverse eco-systems by including into a newly developed management plan the following science-based conservation elements:

- development of appropriate land use and management actions across the federal lands in order to achieve scientifically informed conservation goals and objectives;
- a specific assessment of the likely consequences of climate change on the ecosystems in the plan area, together with the development of a strategy that maintains the essential connectivity across the plan landscape;
- development of a strategy to address the anticipated increase in exotic plant and animal species;
- an increased focus on the potential for restoration of desired ecological conditions as a strategy to achieve regional conservation goals; and
- a specific focus on maintaining the connectivity of aquatic elements (i.e., streams and riparian areas) as a key strategy in the plan.

The BSM will address additional goals that are important to residents in the region, including the integration of local communities into the National Monument's management approach so that local economic development is fostered, the maintenance of many existing uses on the landscape (e.g., grazing) when these uses help achieve management goals, improved recreational opportunities that are compatible with the plan's conservation focus, and an emphasis on achieving voluntary integration of state-owned and private lands into the National Monument's framework to the extent practicable. The BSM also will address other scientifically rich topics, including the identification and interpretation of important geological (e.g., volcanic and tectonic processes), archaeological (e.g., established early-to-late Holocene occupancy) and historical (e.g., mining) resources throughout the region.

The permanent protection of the Berryessa Snow Mountain Region provides the opportunity for broad-based land protections, from high-elevation subalpine tundra on Snow Mountain to the low elevation oak woodlands of Cache Creek. The protection of these areas will provide numerous conservation benefits to natural ecosystems in the BSM region, as well as benefits to the human population of the region and California as a whole, in the form of clean water, clean air and valuable open space.

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